IV. *Some Observations of the Mercury's Altitude, with the Changes of the Weather at* Emüy *in* China. *Lat.* 24°. 20'. N°.

By Mr. *James Cunningham.*

October 1698.

FRom the 1*st.* to the 8*th.* fair and clear Weather, the Mercury's Altitude, $29\frac{14}{20}$ Digit.

From the 8*th.* to the 11*th.* close and cloudy Weather, the Mercury falling to $29\frac{13}{20}$ Digit.

11*th.* Close Weather, somewhat cloudy.

12*th.* Close Weather blowing fresh at *North-east.*

13*th.* and 14*th.* close and cloudy Weather, with much Rain, and fresh Winds from *North-east* to *North-west.*

The Tide, (which commonly flows 3 Fathoms) did flow above half a Foot higher 3 Days after the full Moon, then it did on the full Moon at the Equinox.

15*th.* Fair and clear Weather, with small Gales at *North-east.*

From the 15*th.* to the 24*th.* fine moderate fair Weather, with small Gales about *North-east*, and to the 31th. Winds and Weather variable.

November the 1*st.* to the 15*th.* variable, close and cloudy Weather, with some Rain, and variable Gales round the Compass.

& 15*th.* Fair and clear Weather, with small Gales at *North-east*, in the Morning the Mercury's Altitude $29\frac{15}{20}$ Digit, at Noon $29\frac{14}{20}$; and at ten of the Night, being cold, rising to $29\frac{16}{20}$.

16*th.*

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♀. 16*th.* At Sun-riſing very cold, the Mercury's Altitude $29\frac{18}{20}$. At Noon fair and pleaſant Weather, the Mercury falling to $29\frac{17}{20}$. At Night cold, riſing to $29\frac{18}{20}$. The Wind at *North-eaſt.*

♂. 17*th.* This Morning cold, the Mercury at $29\frac{18}{20}$, fair and clear Weather all Day, and at Night blowing ſomewhat freſh at *North-eaſt*, the Mercury at $29\frac{17}{20}$.

♃. 18*th.* This Morning cold, the Mercury at $29\frac{17}{20}$. All Day fair and pleaſant Weather, the Mercury falling to $29\frac{14}{20}$, and by Noon to $29\frac{13}{20}$. The Weather fair, ſomewhat cloſe and cloudy; the Afternoon Sun-ſhining and Warm, and at Night temperate, the Mercury continuing at $29\frac{13}{20}$. Small Winds at *North eaſt*, and almoſt Calm.

☉. 20*th.* A pleaſant Sun ſhining Morning, the Mercury at $29\frac{13}{20}$. At Noon overcaſt, and cloudy, with little Wind at *North-eaſt*, the Mercury falling to $29\frac{15}{20}$. In the Afternoon ſome drops of Rain, with cloſe Weather, and at Night the Mercury continuing at $29\frac{10}{20}$, with ſmall Weſterly Winds. Some Rain in the Night.

☽. 21*ſt.* Cloſe and cloudy Weather, with ſmall Gales at *North-eaſt*, the Mercury at $29\frac{10}{20}$ in the Morning, and continued ſo all day, with ſome drops of Rain in the Afternoon, the Gale freſhning, and a ſhower of Rain at 8 of the Night, the Mercury riſing to $29\frac{12}{20}$

☿. 22*d.* Gray and cloudy Weather all Day, with freſh Gales between *Eaſt* and *North-eaſt.* the Mercury at $29\frac{15}{20}$, and at Night riſing to $29\frac{17}{20}$. Fair Weather, ſomewhat Cloudy.

♀. 23*d.* A very cold Morning, fair and clear, with freſh Gales from *North-eaſt* to *North*, the Mercury at 30 Digit. Fair and clear all Day, with a moderate Gale about *North eaſt*: Clear and very cold all Night, the Mercury continuing at 30 Digit.

♃. 24*th.*

♃. 24*th.* A fair, clear, and cold Morning, the Wind at *North-eaſt*, a moderate Gale, the Mercury continuing at 30 Digit. A clear Sun-ſhining Day, cold and clear all Night, the Mercury as before.

☿. 25*th.* A ſharp cold Morning, fair and clear, with a moderate Gale at *North weſt*, the Mercury fallen to $29\frac{18}{20}$. All Day fair and pleaſant, very warm, and no Wind, the Mercury falling at Noon to $29\frac{15}{20}$, and at Night being ſomewhat Hazy and Calm withal, to $29\frac{14}{20}$.

♄. 26*th.* temperate Weather all Night, and this Morning ſomewhat cloſe and hazy, and no Wind, the Mercury at $29\frac{14}{20}$, and towards Noon growing clearer and warmer, riſing to $29\frac{16}{20}$. Small Brizes at *North-eaſt*, at Night falling to $29\frac{14}{20}$, temperate Weather.

☉. 27*th.* Fine pleaſant Weather all Day, with ſmall variable Brizes from the *North* to *weſt*, and about to *South*, the Mercury in the Morning at $29\frac{14}{20}$, and at Noon falling to $29\frac{12}{20}$, and at Night riſing to $29\frac{14}{20}$. Fair Weather and Calm.

☽. 28*th.* Fine moderate Weather, with a Gale at *North eaſt*, the Mercury at $29\frac{14}{20}$. In the Afternoon the Gale freſhn'd, the Weather ſomewhat Cloudy, and at Night the Mercury was at $29\frac{15}{20}$. blowing freſh.

♂. 29*th.* Fair and clear Weather, ſomewhat cold this Morning, with a freſh Gale at *North-eaſt*; the Mercury at $29\frac{18}{20}$. Fine pleaſant Weather all Day, with ſmall Gales at *North-eaſt*, at Noon the Mercury falling to $29\frac{15}{20}$, and at Night being clear and ſomewhat cold, riſing to $29\frac{17}{20}$.

☿. 30*th.* Fair and pleaſant Weather, with ſmall Gales at *N. E.* the Mercury at $29\frac{17}{20}$. At Noon a freſh Gale, the Mercury falling to $29\frac{14}{20}$. At Night temperate Weather, and little Wind, the Mercury riſing to $29\frac{16}{20}$.

DECEMBER.

☽. *1ſt.* Fine temperate Weather, with ſmall Gales at *North-eaſt*, the Mercury at $29\frac{16}{100}$ in the Morning. Fair Weather all Day, and ſmall Brizes at *North-eaſt*, the Mercury at Noon falling to $29\frac{14}{100}$, and in the Evening to $29\frac{12}{100}$, and at Night riſing to $29\frac{14}{100}$, being fine clear Weather.

♀. *2d.* Fair and temperate Weather, ſomewhat Cloudy, and overcaſt with ſmall Gales at *North-eaſt*, the Mercury at $29\frac{14}{100}$, and at Night riſing to $29\frac{15}{100}$.

♄. *3d.* A clear and cold Morning, with a fine ſharp Gale at *North*, and by *Eaſt*, the Mercury at $29\frac{17}{100}$. A cold Air all Day, the Mercury at Noon falling to $29\frac{15}{100}$, and at Night the Gale freſhning made it colder, the Mercury riſing to $29\frac{18}{100}$.

☉. *4th.* A ſharp Morning with a freſh Gale at *North* and by *Eaſt*, the Mercury at $29\frac{18}{100}$. Fair and clear all Day, with a ſmall *Northerly* Gale, the Mercury by Noon falling to $29\frac{15}{100}$. A ſerene temperate Night, and almoſt Calm, the Mercury as before.

☽. *5th.* A fine clear Morning, with a moderate Gale at *South-weſt*, ſomewhat cold, the Mercury at $29\frac{15}{100}$. At Noon a ſmall Brize at *Eaſt* by *South*, pleaſant Weather, the Mercury at $29\frac{13}{100}$. At Night a ſmall Gale at *South* by *Eaſt*, fair and temperate Weather, ſomewhat hazy, the Mercury at $29\frac{13}{100}$.

♂. *6th.* This Morning ſomewhat cloſe and Cloudy, with a few drops of Rain, the Weather temperate, with ſmall *Southerly* Brizes, the Mercury at $29\frac{13}{100}$. The Afternoon Calm, and ſomewhat Hazy, the Mercury falling to $29\frac{10}{100}$. At Night overcaſt and Cloudy, with ſome Rain, blowing freſh at *North*, the Mercury riſing to $29\frac{14}{100}$.

7th.

☿. *7th.* A gray Morning, clearing up with a freſh Gale at *North-eaſt*, the Mercury at $29\frac{17}{20}$. In the Afternoon the Horizon a little Hazy, the Mercury falling to $29\frac{15}{20}$. At Night clearer, with a freſher Gale, the Mercury riſing to $29\frac{18}{20}$. A very cold Night.

♃. *8th.* A ſharp clear Morning, with a fine Gale at *North-eaſt*, the Mercury at 30 Digit. At Noon falling to $29\frac{18}{20}$, a fine Sun-ſhining Day. At Night cold and clear, a ſmall Gale at *North-eaſt*, the Mercury riſing to 30 Digit.

☾. *9th.* This Morning as the laſt, all Day and Night the ſame, and the Mercury alſo.

♄. *10th.* A cold Morning, ſomewhat Foggy, with a fine Gale at *North-eaſt*, the Mercury at 30 Digit, all Day Fair, Clear and Sun ſhining. At Night cold, the Mercury at $29\frac{19}{20}$.

☉. *11th.* A cold Morning, with a moderate Gale at *North-weſt*, the Mercury at $29\frac{19}{20}$. All Day fair and clear, the Mercury falling to $29\frac{16}{20}$. At Night a freſh Gale at *North-eaſt*, the Mercury at $29\frac{19}{20}$.

☽. *12th.* A gray cold Morning, ſomewhat Cloudy, with a hazy Horizon, a freſh Gale at *North-eaſt*, and the Mercury at $29\frac{19}{20}$, towards Noon falling to $29\frac{17}{20}$, with little Wind, and fair Weather; at Night calm and ſomewhat cold, the Mercury riſing to $29\frac{18}{20}$.

♂. *13th.* A fine pleaſant Morning, with a ſmall Brize at *North-weſt*, the Mercury at $29\frac{18}{20}$. At Noon a ſmall Gale at *North-eaſt*, and in the Afternoon Calm, the Mercury falling to $29\frac{14}{20}$. All day Serene, at Night Calm, with a clear Sky, ſomewhat cold, the Mercury riſing to $29\frac{15}{20}$.

☿. *14th.* A fine temperate Morning, with ſome ſmall Rain like Dew, and a moderate Gale at *South weſt*, the Mercury at $29\frac{15}{20}$. The Afternoon a little overcaſt, and the Horizon ſomewhat Hazy, a ſmall Gale at *South-eaſt*, the Mercury falling to $29\frac{13}{20}$. At Night Temperate and Calm, the Mercury riſing to $29\frac{14}{20}$.

♃. 15*th.* A fine temperate calm Morning, the Mercury at $29\frac{15}{100}$. At Noon fair, pleaſant, calm Weather, the Mercury fallen to $29\frac{12}{100}$. All the Afternoon, and at Night a freſh Gale at *North-eaſt* fair Weather, the Mercury riſing to $29\frac{15}{100}$.

♀. 16*th.* A gray cloudy Morning, ſomewhat Hazy, with a freſh Gale at *North-eaſt*, the Mercury at $29\frac{17}{100}$. At Noon fair and clear, the Gale moderate, and the Mercury falling almoſt to $29\frac{14}{100}$. The Afternoon ſomewhat Cloudy with a fine Gale at North Eaſt; At Night a little Wind, ſerene and ſharp, the Mercury riſing to $29\frac{18}{100}$.

♄. 17th. A Gray Morning ſomewhat cold with a fine Gale at North Eaſt, the Mercury at $29\frac{17}{100}$, and at Noon falling to $29\frac{15}{100}$. At Night little Wind, the Mercury riſing to $29\frac{16}{100}$.

☉. 18th. A fair temperate calm Morning ſomewhat foggy, the Mercury at $29\frac{17}{100}$. All Day fair Weather ſomewhat Cloudy with ſmall Winds at North Eaſt, the Mercury falling to $29\frac{15}{100}$. At Night blowing freſh, the Mercury riſing to $29\frac{18}{100}$.

☽. 19. A Gray cloudy Morning with a freſh Gale at North Eaſt, the Mercnry at $29\frac{18}{100}$. Cloſe Thick Weather, with continual Rain all Day and Night, and a moderate Gale at North Eaſt; at Night the Mercury riſing to $29\frac{19}{100}$.

♂. 20th. Cloſe thick Rainy Weather, the Morning with a moderate Gale at North Eaſt, the Mercury falling below $29\frac{18}{100}$. And by Noon to $29\frac{16}{100}$, continual thick rainy Weather all Day and Night, the Mercury at $29\frac{16}{100}$, and the Gale as before.

☿. 21ſt. A gray cloudy Morning but fair and beginning to clear up and Calm withal, the Mercury at $29\frac{14}{100}$, at Noon fair Weather, and ſomewhat clear, with a ſmall Gale at *South-Weſt*, the Mercury falling to $29\frac{13}{100}$. At Night calm and ſomewhat cloudy, the Mercury at $29\frac{14}{100}$.

♃. 22d.

♃. 22d. A gray cloudy Morning continuing ſo all Day with a ſmall Gale at *North-Eaſt*, the Mercury at $29\frac{14}{20}$, at Night riſing to $29\frac{15}{20}$.

☿. 23d. A gray cloudy Morning, continuing ſo all Day, with ſmall Gales at *North-Eaſt*, the *Mercury* at $29\frac{14}{20}$, at Night more ſerene the *Mercury* riſing to $29\frac{15}{20}$.

♄. 24th. A gray Morning and calm Weather, the Mercury at $29\frac{15}{20}$, cloſe and cloudy Weather all Day and no Wind, the Mercury falling to $29\frac{14}{20}$. At Night riſing almoſt t 79$\frac{15}{20}$.

☉. 25th. A gray cloudy Morning, (ſome Rain before Day light) with ſmall *Southerly* Brizes, the *Mercury* at $29\frac{14}{20}$. Towards Sun-ſhining and pleaſant, little Wind variable, the *Mercury* falling to $29\frac{13}{20}$. The Afternoon and at Night overcaſt and cloudy, the Wind at *South* by *Eaſt*, and the *Mercury* riſing to $29\frac{13}{20}$.

☾. 27th. A fine pleaſant Morning, with a hazy Horizon, and altogether calm, the Mercury at $29\frac{13}{20}$, and by Noon at $29\frac{11}{20}$. All Day pleaſant Weather, and at Night ſmall Gales at *North-Eaſt* the Mercury riſing to $29\frac{12}{20}$.

☿. 28th. A fine pleaſant Morning with a ſmall Brize at Eaſt North Eaſt, the Horizon ſomewhat hazy and the Mercury at $29\frac{11}{20}$. at Noon falling to $29\frac{10}{20}$. All Day fair and pleaſant Weather with the foreſaid Brize. At Night calm, the Mercury falling almoſt to 29^{9}.

♂. 29th. A gray Morning, with a cloſe Horizon, and a ſmall Brize about Eaſt-North-Eaſt, the Mercury at $29\frac{9}{20}$. Calm all the Forenoon, in the Afternoon pleaſant Weather, with a ſmall Gale of South-Eaſt, the Mercury at $29\frac{6}{20}$. At Night calm, the Mercury at $29\frac{7}{20}$.

♃. 30th. A gray cloudy Morning, and cloſe Weather, with a freſh Gale at South-Eaſt, the Mercury at 29$\frac{8}{20}$.

All Day cloudy and dark, the Gale freſhning and veering to *Eaſt-North-Eaſt*, the Mercury riſing to $29\frac{12}{20}$.

♄. 31ſt. Gray cloudy Weather all Day, with a freſh Gale at *North-Eaſt*; in the Evening ſome Rain blowing freſh all Night.

JANUARY.

☉. 1ſt. Variable Weather with ſmall Gales at *North-Eaſt*.

☾. 2d. Rainy thick Weather all Day and Night with little Wind at *North-Eaſt*.

♂. 3d. Continual thick rainy Weather all Day and Night, the Wind at *North-Eaſt*.

☿. 4th. Fair Weather ſomewhat cloſe, and calm all Day and Night.

♃. 5th. Cloſe Weather with ſome Rain and Calm this Forenoon; and in the Afternoon a ſmall Brize at *Weſt-North-Weſt*. Departed from Emüy.

V. *Part of a Letter from Dr.* David Gregory, *to Dr.* Sloane, *dated* Oxford, October 12. 1699. *containing his obſervations of the Eclipſe of the Sun on the* 13*th of* September *laſt.*

I Send you a Scheme of the Phaſes of the late Eclipſe of the Sun, (*ſee the Table*) as I obſerv'd them. I did not ſee the beginning of it: But the end happened here, preciſely Twenty four *Minutes* and Nine ſeconds after Ten a Clock in the *Morning*, apparent Time, and all the Times marked in the Figure are ſuch: The greateſt Obſervation, which was Ten Digits and a Quarter, was about Seven *Minutes* af-

ter